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ABSTRACT

This study was designed to determine the extent to which the results of an employment survey of graduates of a teacher preparation program would have been affected by changes in response rate. At the University of Tennessee, Knoxville, a followup of teacher education program graduates is conducted annually. A total of 284 graduates of the 1992 teacher education program were identified as the target population for the 1993 survey. A total of 184 individuals responded to the mail survey (64.8%), with 33.8% responding to the first wave, 17.2% responding to the second, 6.3% to the third wave, and 7.4% responding late. Telephone calls elicited information from 40 additional persons (14.1%). Supplemental information about employment from other sources resulted in the eventual determination of the occupations of 265 of the 284 individuals (93.3%). There was no evidence that data collected after about 50% of the sample had responded resulted in any meaningful differences in survey results. These results suggest that concentrating on potential nonresponse bias may not be as important as attending to other aspects of survey methodology, such as sample size and questionnaire design. (Contains 2 tables and 28 references.) (SLD)

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Reexamining Traditional Issues in Survey Research: Just How Evil Is the Anathema of Low Response Rate?

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Reexamining Traditional Issues in Survey Research:
Just How Evil Is the Anathema of Low Response Rate?

Survey researchers have long been exhorted to strive for high response rates in order to maximize the likelihood that the respondents are representative of the population being surveyed. It is not surprising, then, that much survey research has been directed towards examining the effects of various manipulatable factors (e.g., personalization, questionnaire design, commemorative stamps, incentives) on response rate. Because such research is so wide-ranging and cuts across so many areas of scientific inquiry, many attempts have been made to characterize, condense, quantify, and/or generalize the effects of these manipulated variables. Boser and Clark (1993) examined nine of these attempts to summarize the results of research on response rates in mail surveys, for example. They stopped short of examining the variables that were studied in these review articles and the conclusions reached therein, however, partly because the populations surveyed and the purposes of the surveys varied so markedly, both within and across the studies summarized in the review articles, and partly because of the lack of details about the procedures used in some of the integrated reviews.

It is clear that attempts to reach the goal of minimizing the likelihood of nonresponse bias through testing various methods of increasing survey response rates have consumed many pages of journal space, generated many papers at professional conferences, and fomented more than a few animated discussions among researchers. The investigation of the extent of nonresponse bias has taken various approaches: comparing respondents with nonrespondents using data already available; comparing respondents with a sample of nonrespondents who are interviewed to obtain their answers to the items on the questionnaire; comparing responses of early respondents with those of late respondents, under the assumption that the late respondents are similar to nonrespondents and would, in fact, have been nonrespondents had follow-up attempts not been instigated; and comparing early respondents with all respondents. The variables being compared range from personal characteristics and demographics, which are available in records and documents (and sometimes from previous surveys), to attitudes and opinions, which must be obtained from the individuals.

The results obtained in this research have been inconsistent. Some studies have found significant differences (although not all were meaningful differences); others have found

none. Even when differences have been found in demographics, the variables of interest were sometimes not influenced (Finn, Wang & Lamb, 1983). Some researchers have suggested that the inconsistent findings in methodological studies in survey research may be (and probably are) due to factors that have nothing to do with the survey research question ostensibly being addressed. Other researchers are skeptical of the generalizability of the findings in many of these studies. For example, Clark (1990) states that attempts to identify "magic bullets" in survey research:

> are often self-defeating, and that more attention should be given to the unique characteristics of the survey application at hand-- . . . the characteristics of the target population, availability of resources, . . . [and] the more basic question of what the researcher hopes to accomplish by conducting the survey. The primary concern of survey research efforts is not always to estimate population parameters as precisely as possible. . . Since resources are limited in most survey applications, compromises and trade-offs have to be made in such areas as sample size; number and type of follow-ups; content, format, and appearance of questionnaires; duplication process; and mailing mode. Researchers should be more conscientious in considering what they hope to accomplish with a particular effort when they make these trade-offs and compromises. They should be more creative in developing solutions to their problems by taking advantage of whatever special opportunities particular applications may offer. (p. 3)

Some have suggested that a high response rate is less important when conducting surveys of homogeneous populations (Becker, Dottavio & Mengak, 1987; Becker & Iliff, 1983; Wellman, Hawk, Roggenbuck, & Buhyoff, 1980; Leslie, 1972). McDaniel, Madden and Verille (1987) recommended that generalizations about nonresponse consider the survey topic. Brennan and Hoek (1992) found patterns in the tendency to respond across topics in two surveys of the same population. Almost 90 percent of those who responded to the first survey also responded to a second survey on a different topic. However, more than half of those who did not return forms and just over one-fourth of those who refused to participate in the first survey, chose to participate in the subsequent survey.

Despite the plethora of research on variables that affect survey response rates--with the implicit goal of determining how to increase response rates--researchers have been much less willing to question the premise that high survey response rates are desirable, important, and/or even essential, in order to minimize the potential bias introduced by the generally unknown (and often unknowable) differences between respondents and nonrespondents. This is interesting because, as Dillman points out, "A low response rate does not necessarily entail nonresponse error" (1991, p.229).

Goudy (1978) and Berdie (1994, 1990, 1989) have proposed that nonresponse bias be approached from the standpoint of representativeness of the respondents and that the appropriate question is whether the results would have differed substantially had a higher response rate been obtained. To answer this question, then, it is necessary to compare results obtained from early returns with those derived from the full set of returns. Differences between response waves are perceived as being relatively unimportant. Mail surveys generally obtain their largest response to the initial mailing, so additions to the data from subsequent mailings would seldom have a drastic influence on the cumulative results. Goudy found that "minor variations (in variable relationships) appear after approximately 50 percent of the sample have completed a mail questionnaire and that no differences exist when about 70 percent of those contacted have returned data, especially when bivariate relationships are tested." (p. 264) After re-examining 14 studies to compare early returns with total returns, Berdie concluded, "As long as response rates exceed 50 to 60 percent, resources used to promote response rate beyond that level are usually better spent in other ways." (p. 63)

Hogan (1985), in an examination of high- and low- response rates (67 percent and 36 percent, respectively) in a survey of graduates from a single institution, concluded that there was very little difference in the distributions of the dependent and independent variables between the two response rate conditions. She attributed this similarity to the homogeneity of the population being surveyed and argued that attempts to increase response rates should, nevertheless, be made, simply as a matter of increasing the credibility of the research. Berdie (1989) disagreed, concluding that "In most [applied] surveys (where the decisions to be made will not be affected by a response variance of only a few percentage points), an obsessive fear of nonresponse bias is not justified, regardless of whether the population is heterogeneous or homogeneous." (pp. 62-63).

One homogeneous population that is frequently surveyed consists of college and university alumni. (Smith & Bers, 1987). Questionnaires are the major approach to obtaining program evaluation information from a specific group of alumni, teacher education program graduates (Adams & Craig, 1983). Response rates in mail follow-up surveys of teacher education program graduates vary from 10 percent to 100 percent, with a median of 52 percent (Boser, 1988b).

In assessing nonresponse bias, college alumni surveys have utilized some of the techniques previously described: comparing respondents with a sample of nonrespondents (Carifio & Schwedel, 1991; Wilkinson; 1976) and with all nonrespondents (Boser 1988a; Hesseldenz, 1976); and comparing early versus late respondents or successive response waves (Bowen & Cooper, 1989; Denton, Tsai, & Chevrette, 1988; Nielsen, Moos, & Lee, 1978). Yet another approach has been to compare the results of two successive alumni surveys with considerably different response rates (Hogan, 1985).

Purpose

The present study was designed to determine the extent to which the results of an employment survey of former graduates of a teacher preparation program would have been affected by changes in response rate. It is an extension of the study by Boser and Clark (1994) and uses data from the same survey. In the earlier paper, the authors concluded that, with respect to the primary purpose of the survey (i.e., to determine how many of the graduates of a teacher education program were, in fact, teaching approximately a year later), a reliable estimate of the proportion who were teaching was reached when the response rate reached about 50 percent (pp. 5-7). This finding is consistent with the recommendations of many researchers (e.g., Babbie, 1990), including Hogan and Berdie.

When data relevant to the central purpose of a survey are gathered outside the bounds of the questionnaire itself, the researcher must be careful in interpreting other information gathered in the survey (i.e., that for which less [or no] information is known about the nonrespondents). In interpreting such data, the consequential issue is item nonresponse. The degree to which the researcher can have confidence in such data depends on the extent of his/her knowledge of the population--through previous contact, experience with similar populations, etc. The method used by some researchers (e.g., Boser & Clark, 1994; Clark & Nichols, 1983) to construct 100 percent confidence intervals around estimates of population characteristics would often yield confidence limits that would be too broad to be of much use. In situations in which a researcher often deals with the same type of population, however, it is useful to glean as much information as possible about them whenever the opportunity presents itself. In this spirit, therefore, the authors decided to examine the other (i.e., beyond whether or not

they were teaching) characteristics of the respondents to the employment survey, in order to further test the 50 percent-response-rate hypothesis.

Method

At the University of Tennessee, Knoxville (UTK), the follow-up survey of teacher education program graduates is conducted annually. One of the major purposes of the survey is to determine the employment of graduates, which enables the College of Education to provide information to the Career Planning and Placement Services on campus about graduates who are still pursuing teaching positions.

A total of 284 graduates of the 1992 teacher education program were identified as the target population for the 1993 follow-up survey. A questionnaire, cover letter, and a postage-paid business reply envelope were mailed to each of the individuals on the mailing list in mid-October of 1993. Reminder letters (with replacement questionnaires and envelopes) were mailed to nonrespondents three weeks later. A final mailing was sent to those who had still not responded after another three weeks. Telephone calls were made in January 1994 to the remaining nonrespondents.

In addition to the survey of graduates, other sources of employment information were used in attempts to classify those graduates for whom employment data had not been obtained. A list of new teachers in the local school system was obtained, and lists of nonrespondents were sent to UTK faculty mentoring team leaders. A different survey of the same graduates was undertaken in Spring 1994. One follow-up mailing was sent. Through the second survey, additional information about nonrespondents to the earlier survey was obtained.

The employment questionnaire contained 42 items, which dealt with the graduates' demographics, their job search, their present employment, their occupational plans, and a brief evaluation of the UTK teacher education program. Response options were provided for all but seven items. For additional details regarding the survey, the target population, the survey procedures, and the initial analytic procedures, the reader is referred to Boser and Clark's 1994 paper.

Results and Discussion

A total of 184 individuals responded to the survey by mail, for an overall mail return rate of 64.8 percent. There were 96 respondents (33.8 percent) from the first wave, 49 (17.2 percent) from the second wave, 18 (6.3 percent) from the third wave, and 21 (7.4 percent) late responses. Telephone calls elicited occupational information for 40 more individuals (14.1 percent). An additional 20 graduates (7.0 percent) were identified as teachers using the local school system list of new teachers, and UTK faculty members provided employment information for 18 individuals (6.3 percent). Three individuals (1.0 percent) for whom employment information was previously unavailable responded to the second survey. When all sources of information had been utilized, occupations of 265 of the 284 individuals in the target population (93.3 percent) were determined, as well as some other information sought on the questionnaire.

When comparing partial results with final results using inferential statistics, one of the assumptions underlying the tests (i.e., independence of the samples) is violated. This doesn't mean that the results are not useful, however, particularly in the context of survey research, when it is usually difficult, if not impossible, to collect all data on every member of the target population. Tables 1 and 2 summarize the results of comparisons of responses after the second wave (by which time just over 50 percent of the graduates had responded) with those from all available sources. The number of individuals responding to each item by the end of the second wave of mailings is indicated by n_1, and the number of graduates for whom information for a particular item was available from any source (including the first two mailings) is indicated by n_2. Some items in the questionnaire did not apply to all graduates, so the values for n_1 and n_2 in Tables 1 and 2 are not always indicative of item nonresponse. Inasmuch as none of the differences between the n_1 and n_2 results even approaches statistical significance, there is no evidence that data collected after about 50 percent of the target population had responded resulted in a meaningful difference in the results.

As mentioned before, there are deficiencies regarding the statistical approach used in this study. The lack of generalizability of the results to heterogeneous populations, to populations of a different sort, and to surveys with a different intent and/or content must not be trivialized either. On the other hand, in the context in which this particular survey was conducted (e.g., purpose, target population, past familiarity with populations of this type, necessity of surveying similar populations for similar purposes in the future), this

kind of study becomes a useful tool for these researchers--and researchers in comparable settings--to make more informed decisions about the allocation of limited resources across the various components of the survey process.

Conclusion

In applied settings, survey researchers must regularly determine how to allocate limited resources across various elements of the survey process. Often--too often, perhaps--their primary attention is directed towards battling the universally feared demon of potential nonresponse bias, by taking sometimes exotic (and expensive) measures to maximize the survey response rate. Unfortunately, these measures come at the expense of other factors, such as sample size, questionnaire length, and/or questionnaire design. In recent years, some survey researchers have brought into question this heretofore sacred tenet of survey research. They have suggested that more attention be given to the purpose of the survey, the context in which it is conducted, and especially the characteristics of the population being surveyed, rather than blindly assuming that their first priority should be to minimize nonresponse. The natural extension of such an approach is that survey researchers pay closer attention to research--published or otherwise--on populations and purposes that are generally consistent with their own. Not only will such an effort more likely result in a less confusing array of research findings, but it will also help all researchers who are interested in a similar population better understand them, so that more informed decisions can be made about the relative importance of maximizing response rates for a particular population and a particular purpose.

Table 1

Comparison of Responses After Two Waves with Final Results: Categorical Variables

Focus of Item and Response Options	n_1	n_2	χ^2	Prob. $\geq \chi^2$
Classification of graduate (3 possibilities)	145	265	1.19, 2df	0.55
Major (6 possibilities)	145	265	2.29, 5 df	0.81
Employed full time? (yes, no)	140	178	0.02, 1 df	0.89
Employment related to UTK program? (yes, somewhat, no)	137	174	0.63, 2 df	0.73
Present job situation (17 choices, including "other")	145	265	4.41, 15 df	0.99
If not teaching but planning to teach, why not now (6 reasons, including "other")	39	48	0.55, 6 df	0.99
Applied for teacher license? (yes, no)	144	182	0.07, 1 df	0.78
Did you look for teaching position? (yes, no)	143	181	0.06, 1 df	0.80
Apply for position in same system you interned/student-taught in? (yes, no)	144	182	0.14, 1 df	0.71
If yes, were you offered position? (yes, no)	97	119	0.41, 1 df	0.52
Register with UTK placement center? (yes, no)	143	181	0.06, 1 df	0.81

(table continued on next page)

NOTES:

n_1 is number of graduates responding to item during first two waves (cumulative response rate = 51.1 percent).

n_2 is total number of graduates for whom information was either supplied by the graduate via mail survey or obtained from other sources (total response rate = 93.3 percent).

Some items do not apply to all graduates, so low numbers for n_1 and n_2 are not necessarily indicative of high item nonresponse.

Table 1 (continued)

Comparison of Responses After Two Waves with Final Results: Categorical Variables

Focus of Item and Response Options	n_1	n_2	χ^2	Prob. $\geq \chi^2$
Interview on campus? (yes, no)	144	182	0.03, 1 df	0.87
If yes, were you eventually offered position? (yes, no)	90	112	0.41, 1 df	0.52
Notified of any jobs by placement center? (yes, no)	139	176	0.22, 1 df	0.64
Contacted by school as a result of being registered? (yes, no)	136	171	0.00, 1 df	0.99
Offered any positions you declined? (yes, no)	143	181	0.11, 1 df	0.74
If not teaching now, are you seeking teaching job? (yes, no)	54	64	0.30, 2 df	0.86
If not teaching, do you plan to seek teaching job? (yes, no, undecided)	51	61	0.13, 2 df	0.94
Plan to be teaching next year? (yes, no, undecided)	144	182	0.59, 2 df	0.75
Plan to be teaching in 5 years? (yes, no, undecided)	144	182	0.21, 2 df	0.90
Plan to be teaching in 10 years? (yes, no, undecided)	144	182	0.07, 2 df	0.97
Plan to teach until retirement? (yes, no, undecided)	144	182	0.04, 2 df	0.98

(table continued on next page)

NOTES:

n_1 is number of graduates responding to item during first two waves (cumulative response rate = 51.1 percent).

n_2 is total number of graduates for whom information was either supplied by the graduate via mail survey or obtained from other sources (total response rate = 93.3 percent).

Some items do not apply to all graduates, so low numbers for n_1 and n_2 are not necessarily indicative of high item nonresponse.

Table 1 (continued)

Comparison of Responses After Two Waves with Final Results: Categorical Variables

Focus of Item and Response Options	n_1	n_2	χ^2	Prob. $\geq \chi^2$
Would you major in teacher education again? (yes, no, undecided)	141	187	0.26, 2 df	0.88
Teaching full-time below postsecondary level? (yes, no), a screening item	143	181	0.10, 1 df	0.75
College of bachelor's degree (6 choices, including "other")	141	178	0.31, 5 df	0.99
Transfer status (4 choices)	135	171	0.11, 3 df	0.99
How did you fulfill field requirement? (3 choices)	144	182	0.60, 2 df	0.74
Area(s) of licensure (22 choices, including "other")	144	182	1.35, 14 df	0.99
Gender (2 categories)	145	265	0.01, 1 df	0.92
If not teaching, do you want placement center to consider you for teaching positions? (yes, no)	76	89	0.05, 1 df	0.83

NOTES:

n_1 is number of graduates responding to item during first two waves (cumulative response rate = 51.1 percent).

n_2 is total number of graduates for whom information was either supplied by the graduate via mail survey or obtained from other sources (total response rate = 93.3 percent).

Some items do not apply to all graduates, so low numbers for n_1 and n_2 are not necessarily indicative of high item nonresponse.

Table 2

Comparison of Responses After Two Waves with Final Results: Continuous Variables

Focus of Item and Response Options	n_1	n_2	n_1 mean	n_2 mean	t	Prob. ≥ | t |
Quality of academic experiences at UTK (1=poor; 4=excellent)	143	181	2.98	3.01	-0.36	0.72
Quality of social experiences at UTK (1=poor; 4=excellent)	141	179	3.04	3.07	-0.52	0.60
Quality of cultural experiences at UTK (1=poor; 4=excellent)	142	179	2.63	2.69	-0.64	0.53
Quality of overall experience at UTK (1=poor; 4=excellent)	144	182	3.04	3.08	-0.62	0.53
Satisfaction with UTK teacher preparation program (1=very satisfied; 4=very dissatisfied)	143	181	7.00	7.10	-0.52	0.60
Satisfaction with present employment situation (1=very satisfied; 4=very dissatisfied)	142	180	1.73	1.75	-0.16	0.88
Difficulty in obtaining teaching job (1=much difficulty; 3=no difficulty)	92	120	2.15	2.23	-0.73	0.47
Age upon completion of teacher education program (fill-in-the-blank)	142	179	26.76	26.78	-0.03	0.98

NOTES:

n_1 is number of graduates responding to item during first two waves (cumulative response rate = 51.1 percent).

n_2 is total number of graduates for whom information was either supplied by the graduate via mail survey or obtained from other sources (total response rate = 93.3 percent).

Some items do not apply to all graduates, so low numbers for n_1 and n_2 are not necessarily indicative of high item nonresponse.

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